



Docket No.: 42P15449

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

File the Application of:

HONG WANG, ET AL.

Application No.: 10/632,431

Filed: July 31, 2003

For: **METHOD AND APPARATUS FOR AFFINITY-GUIDED
SPECULATIVE HELPER THREADS IN CHIP
MULTIPROCESSORS**

Art Group: 2181

Examiner: MOLL, JESSE R

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In accordance with the duty of disclosure, enclosed is a copy of IDS Citation Form PTO/SB/08 or PTO-1449, together with copies of the documents cited on that form, except for copies not required to be submitted (e.g., copies of U.S. patents and U.S. published patent applications need not be enclosed). This IDS and IDS Citation Form are being submitted before the mailing of a final Office Action. It is respectfully requested that the cited references be considered and that the enclosed copy of PTO/SB/08 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s).

05/22/2006 FFANAEIA 00000055 10632431

01 FC:1806

180.00 OP

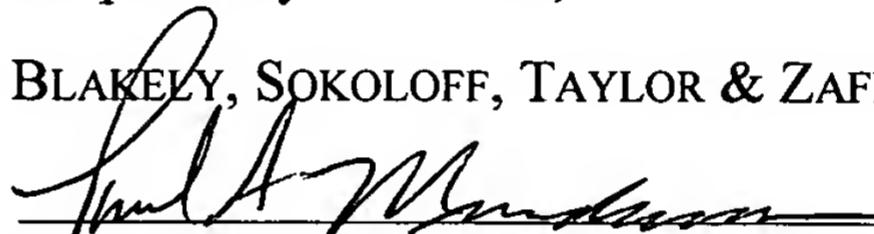
The submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made in the subject application and is not to be construed as an admission that the information cited in this statement is material to patentability.

The fee set in the amount of \$180.00 for submission of the Information Disclosure Statement is enclosed herewith. Please charge any additional fees due to Deposit Account 02-2666. A duplicate copy of the Fee Transmittal (PTO/SB/17) is enclosed for this purpose.

Date: May 15, 2006

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP


Paul A. Mendonsa, Reg. No. 42,879

12400 Wilshire Boulevard, 7th Floor
Los Angeles, CA 90025
Telephone: (503) 439-8778

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



Gayle Bekish

05-15-06

Date



MAY 19 2006

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

3

<i>Complete if Known</i>	
Application Number	10/632,431
Filing Date	July 31, 2003
First Named Inventor	Hong Wang
Art Unit	2181
Examiner Name	MOLL, JESSE R
Attorney Docket Number	42P15449

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

Examiner Signature	Date Considered
-----------------------	--------------------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Applicant's unique citation designation number (optional). ²See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Based on PTO/SB/08A (08-03) as modified by Blakely, Solokoff, Taylor & Zafman (wtr) 08/11/2003

Send To: Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Sheet

2

of

3

Complete if Known

Application Number	10/632,431
Filing Date	July 31, 2003
First Named Inventor	Hong Wang
Art Unit	2181
Examiner Name	MOLL, JESSE R
Attorney Docket Number	42P15449

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		H. Akkary and M. Driscoll, "A Dynamic Multithreading Processor", In <i>Micro-31</i> , Proceedings of the 31st Annual International Symposium on Microarchitecture, 30 Nov.-2 Dec. 1998 Page(s):226 - 236.	
		J. G. Steffan, C. B. Colohan, A. Zhai, and T. C. Mowry, "A Scalable Approach to Thread-level Data Speculation", In <i>ISCA-27</i> , Proceedings of the 27th Annual International Symposium on Computer Architecture, June 2000, pages 1-12.	
		J. G. Steffan, C. B. Colohan, A. Zhai, and T. C. Mowry, Improving Value Communication for Thread-level Speculation. In <i>HPCA-8</i> , Proceedings of the 8th Annual International Symposium on High-Performance Computer Architecture, Feb. 2-6, 2002, pages 65-75.	
		L. Hammond, M. Willey, and K. Olukotun, "Data Speculation Support for a Chip Multiprocessor", In <i>ASPLOS-VIII</i> , Proceedings of the 8th Annual International Conference on Architectural Support for Programming Languages and Operating Systems, Oct. 1998, pages 58-69.	
		V. Krishnan and J. Torrellas, "The Need for Fast Communication in a Hardware-Based Speculative Chip Multiprocessors", in <i>PACT-99</i> , Proceedings for the 1999 International Conference on Parallel Architectures and Compilation Techniques, Oct. 1999, page 24.	
		C. K. Luk, Tolerating Memory Latency through Software-Controlled Pre-Execution in Simultaneous Multithreading Processors, In <i>28th ISCA</i> , International Symposium on computer Architecture, June 2001, page 24.	
		T. Moshovos, D. Pnevmatikatos, A. Baniasadi, "Slice Processors: An Implementation of Operation-Based Prediction", Proceedings of the 15th Annual International Conference on Supercomputing, Italy, June 2001, pages 321-334.	

Examiner Signature	Date Considered
--------------------	-----------------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Applicant's unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Based on PTO/SB/08B (08-03) as modified by Blakely, Solokoff, Taylor & Zafman (wir) 08/11/2003.
Send To: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Sheet

3

of

3

Complete if Known

Application Number	10/632,431
Filing Date	July 31, 2003
First Named Inventor	Hong Wang
Art Unit	2181
Examiner Name	MOLL, JESSE R
Attorney Docket Number	42P15449

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		<u>Speculative Precomputation on Chip Multiprocessors</u> , Jeffery A. Brown, Hong Wang, George Chrysos, Perry H. Wang, John P. Shen, at the <i>6th Workshop on Multithreaded Execution, Architecture, and Compilation (MTEAC-6)</i> , November, 2002.	
		M. Annavaram, J. Patel, E. Davidson. "Data Prefetching by Dependence Graph Precomputation". In <i>28th Annual International Symposium on Computer Architecture</i> , July 2001.	
		J. Collins, D. Tullsen, H. Wang, J. Shen, "Dynamic Speculative Precomputation". In <i>Micro 34</i> , Proceedings of the 34th Annual International symposium on Microarchitecture, December 2001, pages 306-317.	
		H. Wang, P. Wang, R. D. Weldon, S. Ettinger, H. Saito, M. Girkar, S. Liao, J. Shen. "Speculative Precomputation: Exploring the use of Multithreading for Latency". In <i>Intel Technology Journal</i> , Volume 6, Issue on Hyper-threading, February 2002.	
		P. Wang, H. Wang, J. Collins, E. Grochowski, R. Kling, J. Shen. "Memory Latency-Tolerance Approaches for Itanium Processor: Out-of-order Execution vs. Speculative Precomputation". In Proceedings of the 8th Annual <i>IEEE HPCA International Symposium on High-Performance Computer Architecture</i> , Feb, 2002.	
		C. Zilles and G. Sohi. "Execution-Based Prediction Using Speculative Slices". In <i>ISCA</i> , Proceedings of the 28th Annual International Symposium on Computer Architecture, Sweden, July 2001, pages 2-13.	
		S. Liao, P. Wang, G. Hoflehner, D. Lavery, J. Shen, "Post-Pass Binary Adaptation for Software-Based Speculative Precomputation", In <i>PLDI</i> , ACM Conference on Programming Language Design and Implementation, June 2002.	

Examiner Signature	Date Considered
--------------------	-----------------

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

¹Applicant's unique citation designation number. ²Applicant is to place a check mark here if English language Translation is attached.

Based on PTO/SB/08B (08-03) as modified by Blakely, Solokoff, Taylor & Zafman (wir) 08/11/2003.
Send To: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450



1fw

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

		Application No.	10/632,431
		Filing Date	July 31, 2003
		First Named Inventor	Hong Wang
		Art Unit	2181
		Examiner Name	MOLL, JESSE R
Total Number of Pages in This Submission	8	Attorney Docket Number	42P15449

ENCLOSURES (check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input checked="" type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment / Response	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	Copies of 15 cited references Return Postcard
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s)	
<input checked="" type="checkbox"/> PTO/SB/08	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Certified Copy of Priority Document(s)		
<input type="checkbox"/> Response to Missing Parts/ Incomplete Application		
<input type="checkbox"/> Basic Filing Fee		
<input type="checkbox"/> Declaration/POA		
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

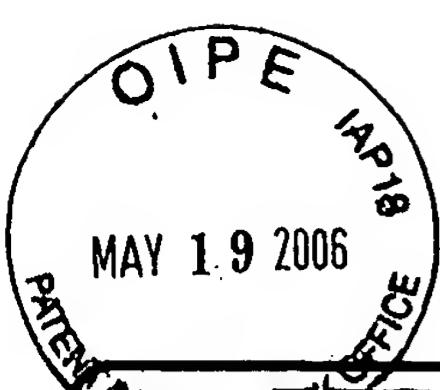
Firm or Individual name	Paul A. Mendonsa, Reg. No. 42,879 BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Signature	
Date	May 15, 2006

CERTIFICATE OF MAILING/TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Typed or printed name	Gayle Bekish
Signature	
Date	May 15, 2006

Based on PTO/SB/21 (09-04) as modified by Blakely, Sokoloff, Taylor & Zafman (wir) 11/30/2005.
SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450



FEET TRANSMITTAL for FY 2005

Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27.

TOTAL AMOUNT OF PAYMENT (\$ 180.00)

Complete if Known	
Application Number	10/632,431
Filing Date	July 31, 2003
First Named Inventor	Hong Wang
Examiner Name	MOLL, JESSE R
Art Unit	2181
Attorney Docket No.	42P15449

METHOD OF PAYMENT (check all that apply)

Check Credit card Money Order None Other (please identify): _____

Deposit Account Deposit Account Number: 02-2666 Deposit Account Name: Blakely, Sokoloff, Taylor & Zafman LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

Charge fee(s) indicated below Charge fee(s) indicated below, except for the filing fee
 Charge any additional fee(s) or underpayment of fee(s) Credit any overpayments
 under 37 CFR §§ 1.16, 1.17, 1.18 and 1.20.

FEE CALCULATION

Large Entity	Small Entity	Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code (\$)	
1051	130	2051 65 Surcharge - late filing fee or oath	
1052	50	2052 25 Surcharge - late provisional filing fee or cover sheet.	
2053	130	2053 130 Non-English specification	
1251	120	2251 60 Extension for reply within first month	
1252	450	2252 225 Extension for reply within second month	
1253	1,020	2253 510 Extension for reply within third month	
1254	1,590	2254 795 Extension for reply within fourth month	
1255	2,160	2255 1,080 Extension for reply within fifth month	
1401	500	2401 250 Notice of Appeal	
1402	500	2402 250 Filing a brief in support of an appeal	
1403	1,000	2403 500 Request for oral hearing	
1451	1,510	2451 1,510 Petition to institute a public use proceeding	
1460	130	2460 130 Petitions to the Commissioner	
1807	50	1807 50 Processing fee under 37 CFR 1.17(q)	
1806	180	1806 180 Submission of Information Disclosure Stmt	180.00
1809	790	1809 395 Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810 395 For each additional invention to be examined (37 CFR § 1.129(b))	
Other fee (specify) _____			
SUBTOTAL (2) (\$)			180.00

SUBMITTED BY		Complete (if applicable)		
Name (Print/Type)	Paul A. Mendonsa	Registration No. (Attorney/Agent)	42,879	Telephone (503) 439-8778
Signature		Date	05/15/06	